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|--|---|---|---|--------------------------------------|---|
| APPLICABLE STANDARD  |   | IEC 61076-3-124   |   |                                      |   |
| RATING   | Operating Temperature Range              | -40°C to +85°C(95%RH max)<br>(note1,2)  | Storage Temperature Range   | -30°C to +60°C(95%RH max)<br>(note1) |   |
|  | Voltage   | 50 V AC / 60 V DC   | Current   | 1.5 A/pin (all pin)                  |   |
|  |   |   |   | 3 A/pin (pin No.1,2,6,7)             |   |
| SPECIFICATIONS   |   |   |   |                                      |   |
| ITEM   | TEST METHOD   |   | REQUIREMENTS  |                                      | QT AT   |
| CONSTRUCTION   |   |   |   |                                      |   |
| General Examination  | Examined visually and with a measuring instrument.  |   | According to drawing.   |                                      | X X   |
| Marking  | Confirmed visually.   |   | According to drawing.   |                                      | X X   |
| ELECTRIC CHARACTERISTICS   |   |   |   |                                      |   |
| Contact Resistance   | Measured at 100 mA max (DC or 1000 Hz).  | Contact : 30 mΩ max. (note3)<br>Shield : 100 mΩ max. (note3)  | X   | —                                    |   |
| Insulation Resistance  | Measured at 500 V DC.   | 500 MΩ min.   | X   | —                                    |   |
| Voltage Proof  | 500 V DC applied for 1 min. Current leakage 2mA max.  | No flashover or breakdown.  | X   | —                                    |   |
| Insertion Loss   | Measured in the range of 1 to 500 MHz.  | 0.02 √(f) dB max.<br>(Whenever the formula results in a value less than 0.1 dB, the requirement shall revert to 0.1 dB.)  | X   | —                                    |   |
| Return Loss  | Measured in the range of 1 to 500 MHz.  | 68 – 20log(f) dB min.<br>(Whenever the formula results in a value greater than 30 dB, the requirement shall revert to 30 dB.)   | X   | —                                    |   |
| Near end Crosstalk   | Measured in the range of 1 to 500 MHz.  | 94 – 20log(f) dB min. (1MHz to 250MHz)<br>46.04 – 30log(f/250) dB min. (250MHz to 500MHz)<br>(Whenever the formula results in a value greater than 75 dB, the requirement shall revert to 75 dB.) | X   | —                                    |   |
| Far end crosstalk  | Measured in the range of 1 to 500 MHz.  | 83.1 – 20log(f) dB min.<br>(Whenever the formula results in a value greater than 75 dB, the requirement shall revert to 75 dB.)   | X   | —                                    |   |
| Transverse Conversion Loss   | Measured in the range of 1 to 500 MHz.  | 68 – 20log(f) dB min.<br>(Whenever the formula results in a value greater than 50 dB, the requirement shall revert to 50 dB.)   | X   | —                                    |   |
| Transverse Conversion Transfer Loss  | Measured in the range of 1 to 500 MHz.  | 68 – 20log(f) dB min.<br>(Whenever the formula results in a value greater than 50 dB, the requirement shall revert to 50 dB.)   | X   | —                                    |   |
| MECHANICAL CHARACTERISTICS   |   |   |   |                                      |   |
| Insertion and Withdrawal Forces  | A maximum rate of 50 mm/min.<br>Measured by applicable connector.   | Insertion force 25 N max.<br>Withdrawal force 25 N max.   | X   | —                                    |   |
| Mechanical Operation   | 5000 times insertions and extractions.<br><br>Mating speed : 10 mm/s max.<br>Rest : 5s, min.(unmated)                     | 1) Resistance:<br>Contact : 80 mΩ max. (note3)<br>Shield : 100 mΩ max. (note3)<br>2) No damage, cracks or looseness of parts.   |  X | —                                    |   |
| <b>Note</b><br> 1. Non-condensing. 2. The operation temperature includes the temperature rise by current carrying<br>3. The cable conductor resistance is not considered.<br>4. Electrical characteristics are applicable to the contacts and shield except for contacts No. 3 and 8. |   |   |   |                                      |   |
|  | COUNT   | DESCRIPTION OF REVISIONS  | DESIGNED  | CHECKED                              | DATE  |
|   | 18  | DIS-E-00003730  | MT.YASUDA   | KI.KAGOTANI                          | 20210317  |
| REMARK   |   |   | APPROVED  | MN.KENJO                             | 20191209  |
|  |   |   | CHECKED   | KI.NAGANUMA                          | 20191209  |
|  |   |   | DESIGNED  | MT.YASUDA                            | 20191209  |
|  |   |   | DRAWN   | YK.MITSUISHI                         | 20191209  |
| Unless otherwise specified, refer to IEC 60512.  |   |   |   |                                      |   |
| Note QT:Qualification Test AT:Assurance Test X:Applicable Test   |   |   | DRAWING NO.   |                                      | ELC-129981-00-00  |
|   | SPECIFICATION SHEET   |   | PART NO.  | IX31G-A-10S-CVL2(7.0)                |   |
|  | HIROSE ELECTRIC CO., LTD.   |   | CODE NO.  | CL0251-0069-0-00                     |  1/3 |

| SPECIFICATIONS   |  |  |  |                       |    |     |
|--|--|--|--|-----------------------|----|-----|
| ITEM   | TEST METHOD  |  | REQUIREMENTS   | QT                    | AT |     |
| Vibration ,sinusoidal  | Frequency 10 to 500 Hz<br>0.35 mm, 50 m/s <sup>2</sup><br>2hrs in each of 3 mutually perpendicular axis.   |  | 1) No electrical discontinuity of 1μs. (note4)<br>2) No damage, cracks or looseness of parts.  | X                     | —  |     |
| Fretting Corrosion   | 490 m/s <sup>2</sup> , 30 times/min at 1000 times.   |  | 1) No electrical discontinuity of 1μs. (note4)<br>2) No damage, cracks or looseness of parts.  | X                     | —  |     |
| Mechanical Shock   | Subject mated specimens to 300 m/s <sup>2</sup> half-sine shock pulses of 11 milliseconds duration, 3 shocks in both directions of 3 mutually perpendicular directions (totally 18 shocks) |  | 1) No electrical discontinuity of 1μs. (note4)<br>2) Resistance:<br>Contact : 80 mΩ max. (note4)<br>Shield : 100 mΩ max. (note4)<br>3) No damage, cracks or looseness of parts.  | X                     | —  |     |
| Effectiveness of the connector coupling device                 | Applying 80 N force for the mating axis direction in state in fitted with applicable connector.  |  | No unlocking, damage, cracks or looseness of parts.  | X                     | —  |     |
| Locking device mechanical operations                           | 10000 cycles<br>20 cycles/min max  |  | 1) Insertion and Withdrawal Forces<br>Insertion force     25 N max.<br>Withdrawal force   25 N max.<br>2) No damage, cracks or looseness of parts.   | X                     | —  |     |
| Wrenching Strength   | Applying 25times of 30 N 1s for 2 axis direction on tip of plug case in state in fitted with applicable connector.   |  | No damage, cracks or looseness of parts.   | X                     | —  |     |
| ENVIRONMENTAL CHARACTERISTICS                                  |  |  |  |                       |    |     |
| Rapid Change of Temperature                                    | Subject mated specimens to 10 cycles between -55°C and 85°C with 30 minutes dwell at temp. extremes and 2 to 3 minutes transition between temperatures.                                    |  | 1) Voltage proof : 500 V DC applied for 1 min.<br>Current leakage 2mA max.<br>No flashover or breakdown.<br>2) Resistance:<br>Contact : 80 mΩ max. (note3)<br>Shield : 100 mΩ max. (note3)<br>3) Insulation resistance: 500 MΩ min. (at dry)<br>4) No damage, cracks or looseness of parts.  | X                     | —  |     |
| Humidity / Temperature Cycling                                 | Low temperature 25 °C;<br>High temperature 65 °C;<br>Cold sub-cycle - 10 °C;<br>Relative humidity 93 %<br>Duration 10 / each 24 h<br>(IEC 60068-2-38,test Z / AD)                          |  | 1) Voltage proof : 500 V DC applied for 1 min.<br>Current leakage 2mA max.<br>No flashover or breakdown.<br>2) Resistance:<br>Contact : 80 mΩ max. (note3)<br>Shield : 100 mΩ max. (note3)<br>3) Insulation resistance: 500 MΩ min. (at dry)<br>4) Insertion and Withdrawal Forces<br>Insertion force     25 N max.<br>Withdrawal force   25 N max.<br>5) No damage, cracks or looseness of parts. | X                     | —  |     |
| Damp Heat, Steady State  | Subject mated specimens to a relative humidity of 93 % at a temperature of 40°C during 21 days.  |  | 1) Voltage proof : 500 V DC applied for 1 min.<br>Current leakage 2mA max.<br>No flashover or breakdown.<br>2) Resistance:<br>Contact : 80 mΩ max. (note3)<br>Shield : 100 mΩ max. (note3)<br>3) Insulation resistance: 500 MΩ min. (at dry)<br>4) Insertion and Withdrawal Forces<br>Insertion force     25 N max.<br>Withdrawal force   25 N max.<br>5) No damage, cracks or looseness of parts. | X                     | —  |     |
| Note QT:Qualification Test AT:Assurance Test X:Applicable Test |  |  | DRAWING NO.  | ELC-129981-00-00      |    |     |
| HRS  | SPECIFICATION SHEET  |  | PART NO.   | IX31G-A-10S-CVL2(7.0) |    |     |
|  | HIROSE ELECTRIC CO., LTD.  |  | CODE NO  | CL0251-0069-0-00      | ⚠  | 2/3 |

| SPECIFICATIONS  |                           |  |  |              |                       |  |    |     |   |
|---|---------------------------|--|--|--------------|-----------------------|--|----|-----|---|
| ITEM  |                           | TEST METHOD  |  | REQUIREMENTS |                       | QT   | AT |     |   |
| ENVIRONMENTAL CHARACTERISTICS   |                           |  |  |              |                       |  |    |     |   |
| Dry Heat  |                           | Subject to +85 ± 2 °C, 21 days.<br>(mating applicable connector)   |  | ⚠            |                       | 1) Voltage proof : 500 V DC applied for 1 min.<br>Current leakage 2mA max.<br>No flashover or breakdown.<br>2) Resistance:<br>Contact : 80 mΩ max. (note3)<br>Shield : 100 mΩ max. (note3)<br>3) Insulation resistance: 500 MΩ min. (at dry)<br>4) Insertion and Withdrawal Forces<br>Insertion force 25 N max.<br>Withdrawal force 25 N max.<br>5) No damage, cracks or looseness of parts. |    | X   | — |
| Cold  |                           | Subject to -55 ± 3 °C, 10 days.<br>(mating applicable connector)   |  | ⚠            |                       | 1) Voltage proof : 500 V DC applied for 1 min.<br>Current leakage 2mA max.<br>No flashover or breakdown.<br>2) Resistance:<br>Contact : 80 mΩ max. (note3)<br>Shield : 100 mΩ max. (note3)<br>3) Insulation resistance: 500 MΩ min. (at dry)<br>4) Insertion and Withdrawal Forces<br>Insertion force 25 N max.<br>Withdrawal force 25 N max.<br>5) No damage, cracks or looseness of parts. |    | X   | — |
| Corrosion Salt Mist   |                           | Subject to 5 % salt water, 35 ± 2 °C, 48h.<br>(leave under unmated condition.)   |  |              |                       | No heavy corrosion of contacts.  |    | X   | — |
| Mixed Flowing Gas Corrosion   |                           | Test temperature : +25±1 °C, Relative humidity : 75±3 %<br>H <sub>2</sub> S : 10±5 ppb, NO <sub>2</sub> : 200±50 ppb<br>Cl <sub>2</sub> : 10±5 ppb, SO <sub>2</sub> : 200±20 ppb<br>Leave the samples for 4 days with mated.<br>The same is performed with unmated samples.<br>(IEC 60512, method 4) |  | ⚠            |                       | 1) Resistance:<br>Contact : 80 mΩ max. (note3)<br>Shield : 100 mΩ max. (note3)<br>2) No damage, cracks or looseness of parts.  |    | X   | — |
|   |                           |  |  |              |                       |  |    |     |   |
| Note QT:Qualification Test AT:Assurance Test X:Applicable Test                      |                           |  |  | DRAWING NO.  |                       | ELC-129981-00-00   |    |     |   |
|  | SPECIFICATION SHEET       |  |  | PART NO.     | IX31G-A-10S-CVL2(7.0) |  |    |     |   |
|   | HIROSE ELECTRIC CO., LTD. |  |  | CODE NO      | CL0251-0069-0-00      |  | ⚠  | 3/3 |   |